



JENNIFER M. GRANHOLM
GOVERNOR

STATE OF MICHIGAN
**TRANSPORTATION ASSET
MANAGEMENT COUNCIL**



June 9, 2009

Dear Members of the House Transportation Committee:

The Transportation Asset Management Council supports the intent of HB 4962 to expand the practice of asset management to include additional classes of road and bridge related assets and offer the following specific revisions to the proposed legislation:

- Page 2, line 14 to page 3, line 3; Delete the sentence that begins “The asset management....”
- Page 2, line 3; Insert the following: “The mission of the Council is to support excellence in managing Michigan’s transportation assets by advising the legislature and state transportation commission, promoting asset management principles and providing tools and practices for road agencies.”
- Page 3, line 3; Insert the word ”program” after the word “management”
- Page 3, line 5; Insert “of” after “repair”, Delete “and remaining service life or”
- Page 5, line 9; Insert “as defined by the Council” after “assets”
- Page 5, line 21; Do not Delete the first sentence that begins on line 21. Delete “a list of” on line 21. Add the letter “s” to nominee on line 21

Sincerely,

Carmine Palombo, P. E., Chair
Transportation Asset Management Council

Carmine Palombo, chair - Bob Slattery, vice chair - David Bee - William McEntee - Susan Mortel
Spencer Nebel - Jerry Richards - Rob Surber - Kirk Steudle - Steve Warren - Don Dissekoe

Brian Sanada – Asset Management Coordinator
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TAMC Comments on the 2008 TF2 Report

Section 5: Recommended Efficiencies

February 4, 2009

TF2 Recommendation No. 1:

Page 41: “Expand the Asset Management Program to include all public roads, pavement, ancillary elements and utility location.”

The Council supports this concept, though there are practical challenges to its implementation in some areas.

The Council already supports the collection of condition data on all public roads. During FY 2008, the Council authorized the expansion of data collection to approximately one-third of the paved non-federal-aid system and anticipates expanding that effort in FY 2009. However, approximately one third of the non-federal-aid system is gravel. While methods for rating the condition of those roads are available, tools to more effectively manage these routes are not yet developed.

The Council supports the expansion of data-driven decision making to include transportation elements beyond roadway surfaces and bridges. This is consistent with the comprehensive nature of asset management. The Council believes that the practice of asset management will continue to increase and that with sufficient resources, asset management can become a part of Michigan transportation agencies’ investment decision making processes for all public roads and ancillary elements.

It must be recognized, though, that asset management requires not only the collection of data, but also the development of tools to effectively manage those assets based on the data collected. Many of those tools do not yet exist, and the full benefits of asset management processes will not be seen until they are developed. The Council supports the development of those tools and the training required to more effectively manage ancillary elements such as signs, guardrails, pavement marking and drainage systems.



TF2 Recommendation No. 2:

Page 42: “Establish performance standards for all agency operations and use of performance standards in funding allocations.”

Routine maintenance, which consists of activities such as snowplowing, pothole patching, grading, mowing, sweeping, ditch cleanout, sign repair, signal maintenance and other day-to-day tasks that keep a roadway in a reasonable safe and usable condition, consume a great majority of the funds distributed through Act 51 to road agencies. Deferral of routine maintenance activities or the reduction of service levels in order to fund capital preventative maintenance, economic development or safety projects has become a common practice. In many jurisdictions, deferral of routine maintenance or service reductions is required in order to balance budgets.

Determining minimum funding levels for routine maintenance based on the replacement value of the assets an agency is charged with managing would allow for benchmarking across many agencies and serve as a baseline for directing funding to other important and competing elements of the road network. Act 51 annual reports collect data on the level of investment in routine maintenance. Methods to normalize the data across dissimilar agencies are necessary in order to make valid comparisons of agencies or their methods.

Source: "Developing an Asset Management Framework for the Interstate Highway System" Draft Report: NCHRP Project 20-74

Table 5.1 Recommended Core Performance Measures for the Interstate Asset Management Framework

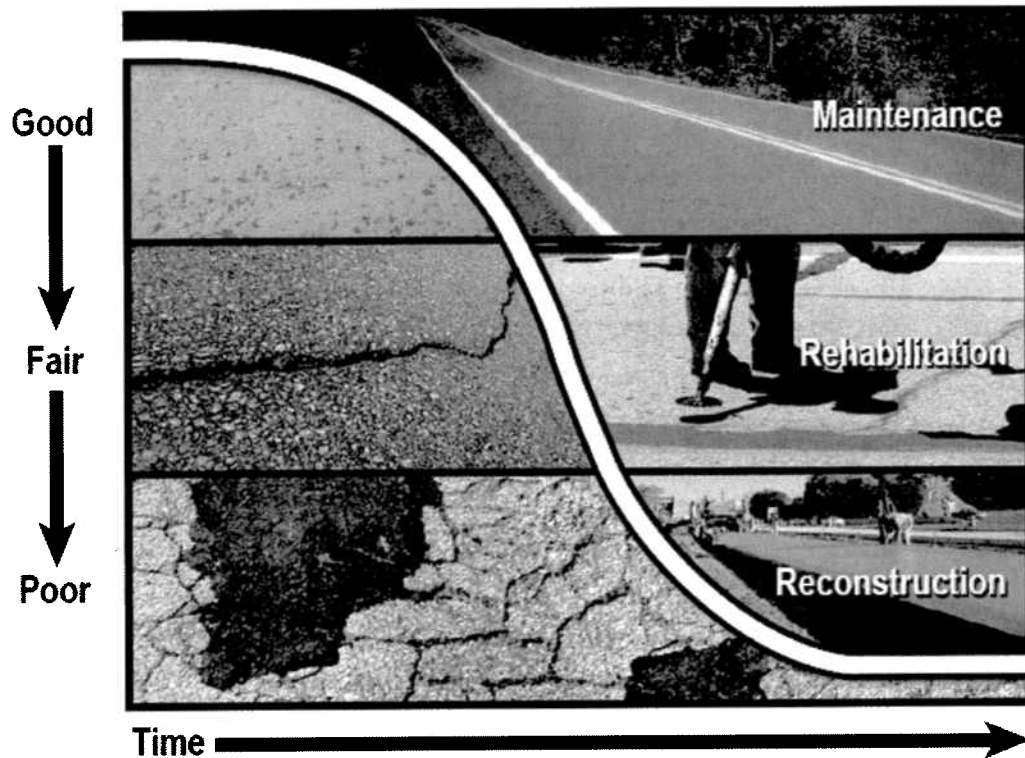
Category	Asset Type	Measure Type	Measure
Preservation	Pavement	Structural Adequacy	Present Serviceability Rating (PSR) or an agency's pavement condition index
		Ride Quality	International Roughness Index (IRI)
	Bridges	Structural Deficiency	Percent classified as Structurally Deficient (SD), weighted by deck area
	Signs	Asset Performance	Percent functioning as intended
	Pavement Markings/ Delineators	Asset Performance	Percent functioning as intended
	Guardrails	Asset Performance	Percent functioning as intended
Mobility		Travel Time	Travel time index
		Delay	Delay per vehicle in hours
Safety		Crash Rate	Number of crashes expressed as number per year and per VMT
		Fatality Rate	Number of fatalities expressed as number per year and per VMT
Environment		Agency-specific report card of environmental milestones	Pass/fail indication for each measure

MICHIGAN'S ROADS & BRIDGES 2008 ANNUAL REPORT



 MICHIGAN TRANSPORTATION
ASSET MANAGEMENT COUNCIL

ROAD DETERIORATION



The “S” curve superimposed over the photos on the cover represents the typical deterioration rate of paved roads. Applying the right pavement “fix” at the right point of the curve is the core of pavement management.

To learn more about pavement management and to read other reports by Michigan’s Transportation Asset Management Council please go to <http://www.michigan.gov/mdotamc>

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EXECUTIVE SUMMARY

After review of the 2008 pavement condition data, the Michigan Transportation Asset Management Council (Council) has come to the conclusion that Michigan's roads are deteriorating at an increasingly rapid rate. Over the course of a single year, the percentage of roads in poor condition increased from 25 percent in 2007 to 32 percent. This represents more than 17,378 lane miles of the federal-aid-eligible roads.

Allowing this trend to continue will have significant financial and economic consequences. For example, the cost of returning a poor road to good condition is four to five times greater than the cost of maintaining a road in fair condition. Allowing more roads to reach poor condition will dramatically increase the costs of repairing Michigan's road network.

In previous years, the Council collected pavement ratings on 100 percent of the federal-aid eligible roads. While the Council set a target for collecting 50 percent in 2008, approximately 65 percent of the state's 54,878 lane miles of paved federal-aid eligible roads were actually collected. Of those miles, 17,341 lane miles were in poor condition (31.6%), 26,890 lane miles were in fair condition (49%), 10,646 lane miles were in good condition (19.4%).

The costs of this continued deterioration are significant. In 2004, it would have cost about \$3.7 billion to bring all poor and fair federal-aid roads up to a good rating. In 2008, it would have cost \$7.2 billion, almost double what it would have cost in 2004. This represents \$3.5 billion in lost value of our road assets. The adoption of good pavement and asset management practices by all road agencies can help check this deterioration and the resulting loss of value, but these practices by themselves will be insufficient.

According to preliminary data collected by the Council in 2008, the condition of the non-federal-aid eligible roads may even be worse. The 10,600 miles of non-federal-aid roads rated in 2008 comprise 21,428 lane miles. The 2008 ratings reveal that 9,223 lane miles or 43 percent are in poor condition. This compares to 32 percent of the federal-aid eligible roads in poor condition.

Michigan's bridges have a significantly higher percentage of deficient bridges than the average of other Great Lake states. In 2008, 14 percent of state-owned bridges were deficient, and 17 percent of the county and local bridges were deficient. If Michigan's bridges are to be the equal of its neighboring states, sound asset management must continue to be followed and greater resources must be found.

Progress has been made in reducing the number of poor bridges under state jurisdiction, and there has been a significant increase in the number of bridges rated fair. The trend for local agency bridges is somewhat different. While the number of local bridges in poor condition has remained constant, there is a trend of good bridges moving into the fair category.

The condition of the state trunk line bridges is expected to improve over the next ten years, local bridges are expected to decline. Part of the reason for the forecasted condition differences between the state-owned bridges and local bridges is that the Michigan Department of Transportation (MDOT) has an aggressive preventive maintenance program (18 percent of its total budget) while most local agencies are not able to put much money toward on-going capital preventive maintenance.

The winter of 2007 – 2008 played a significant role in the increased deterioration of the state's road system. Many miles of structurally weak roads that had stood up to past, milder winters were decimated by heavy snowfalls and frequent freeze – thaw cycles. Every indication points to this trend continuing.

CONDITION OF THE SYSTEM: 2008

Roads

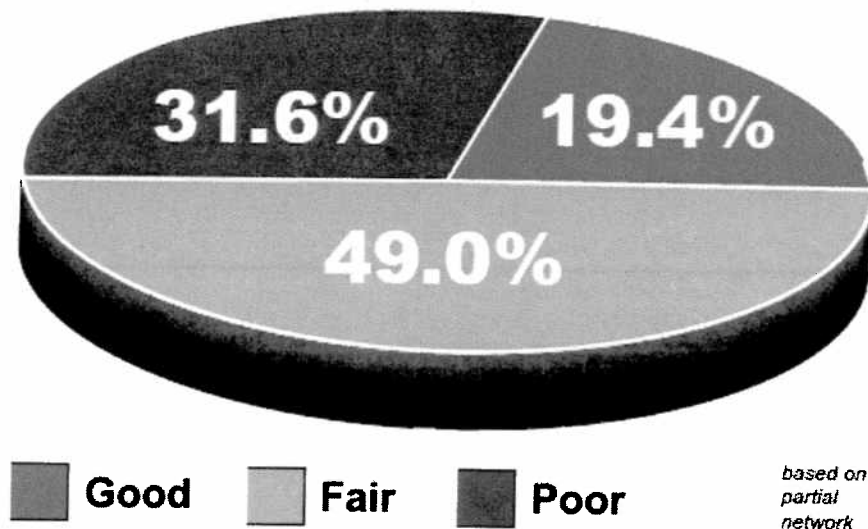
The federal law governing transportation funding changed in July 2005, reducing the number of centerline miles of roads eligible for federal aid from about 43,000 to 39,700. Of this remaining number, roughly 38,700 miles are paved. In 2008, the Council required that only 50 percent of the paved federal-aid eligible roads be rated in 2008, with the other 50 percent being rated in 2009. Even though agencies were only required to report 50 percent, approximately 65 percent of these roads were rated and reported in 2008. Over 100 teams of trained raters assessed the condition of 54,878 lane miles of paved federal-aid eligible roads. The collection of roadway condition data by the Council is a cooperative effort involving teams of county, city, state and regional planning staff members. Individuals must attend PASER training each year before being allowed to rate the roads. This effort was coordinated by the 21 regional planning and metropolitan planning organizations.

The data is reported in lane miles. A lane mile is determined by multiplying the number of lanes by the length of the road. For example, if you were surveying five miles of two-lane road, you would be rating ten lane miles. If it were a four-lane road, then you would have twenty lane miles.

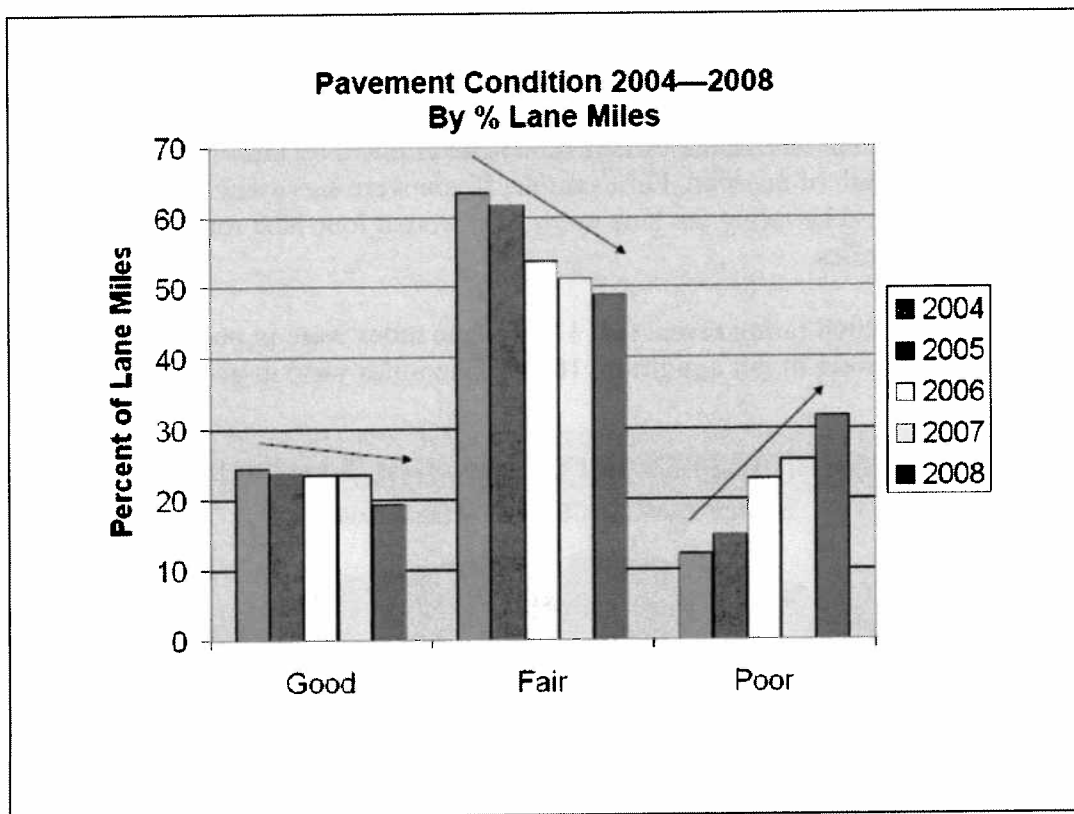
The results of the 2008 rating reveal that 17,341 lane miles were in poor condition, 26,890 lane miles were in fair condition, 10,646 lane miles were in good condition.

2008 ROAD CONDITION IN LANE MILES

Source TAMC 2008 PASER Data Collection

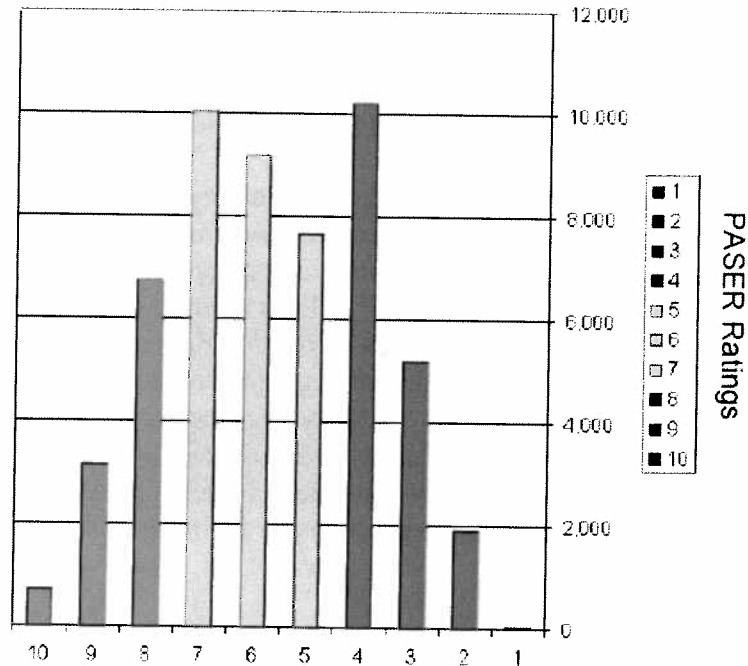


After five years of pavement ratings, it is clear that Michigan's roads are deteriorating faster than they can be maintained. There has been a dramatic increase in the number of lane miles needing structural improvement (rehabilitation and reconstruction). These are roads in "poor" condition. In 2004, 13.6 percent of lane miles were identified as needing structural improvement. By 2008, that number had more than doubled to 31.6 percent. In 2004, nearly 88 percent of the federal-aid system could be considered in good or fair shape. By 2008, that figure fell to 68.4 percent. Clearly, the overall condition of the federal-aid system is getting significantly worse with more miles in poor condition than in good condition. The cost of returning a poor road to good condition is four to five times greater than the cost of returning a fair road to good condition. Allowing more roads to reach poor condition will dramatically increase the costs of repairing Michigan's road network. Unfortunately, the current trend is for more roads to lapse into a poor condition.



Pavement Condition 2008

by lane miles



Source: Transportation Asset Management Council, 2008 PASER

4 Feb 2009

National Functional Classification

National Functional Classification (NFC) is a planning tool which federal, state and local transportation agencies have used since the late 1960's. The Federal Highway Administration (FHWA) developed this system of classifying all streets, roads and highways according to their function.

Principal Arterials are at the top of the NFC hierarchical system. Principal arterials generally carry long distance, through-travel movements. They also provide access to important traffic generators, such as major airports or regional shopping centers. *Minor Arterials* are similar in function to principal arterials, except they carry trips of shorter distance and to lesser traffic generators. *Collectors* tend to provide more access to property than do arterials. Collectors also funnel traffic from residential to rural areas to arterials.

All arterials and collectors are grouped by rural or urban because of their different travel characteristics.

Pavement Condition by National Functional Classification Groups

2007 NATIONAL FUNCTIONAL CLASSIFICATION														
	GOOD				FAIR				POOR				TOTAL	
	Lane Miles	Percent	(% of Class)		Lane Miles	Percent	(% of Class)		Lane Miles	Percent	(% of Class)		Lane Miles	Percent
Freeway	2,817.85	4.15%	34.36%		4,840.67	9.96%	50.43%		1,626.43	2.93%	17.22%		9,284.94	17.04%
Principal Arterial	2,200.43	4.94%	30.53%		5,739.06	11.90%	53.37%		2,812.97	5.70%	26.14%		10,751.05	22.13%
Minor Arterial	2,576.43	5.29%	24.40%		5,875.76	10.44%	48.25%		2,864.36	5.09%	27.30%		10,511.15	21.62%
Collector	2,861.54	5.95%	18.12%		8,274.64	17.02%	43.40%		7,930.22	14.25%	41.48%		13,064.40	25.23%
Total	5,678.84	19.91%			23,920.53	49.21%			15,015.58	10.88%			48,624.94	100.00%

Source: Asset Management Council Pavement Assessments 2004 – 2007 Date: April 2009

Michigan's roads are deteriorating faster than they can be repaired or replaced. The number of lane miles in poor condition has increased by almost 110 percent since 2004. The costs of this continued deterioration are staggering. As shown in the following table, in 2004 it would have cost about \$3.7 billion to bring all poor and fair federal-aid roads up to a good rating. In 2008, because of continuing deterioration and increased costs, it would have cost \$7.2 billion – almost double of what it would have cost in 2004. Of course, putting all roads in good condition is impracticable. Nevertheless, the almost \$3.5 billion in lost value of our road assets is real. The adoption of good pavement and asset management practices by all road agencies can help check this deterioration and the resulting loss of value, but these practices by themselves will be insufficient to do this.

Reduction in Asset Value 2004 - 2008
Comparison of Road Conditions on Michigan's Federal-Aid System

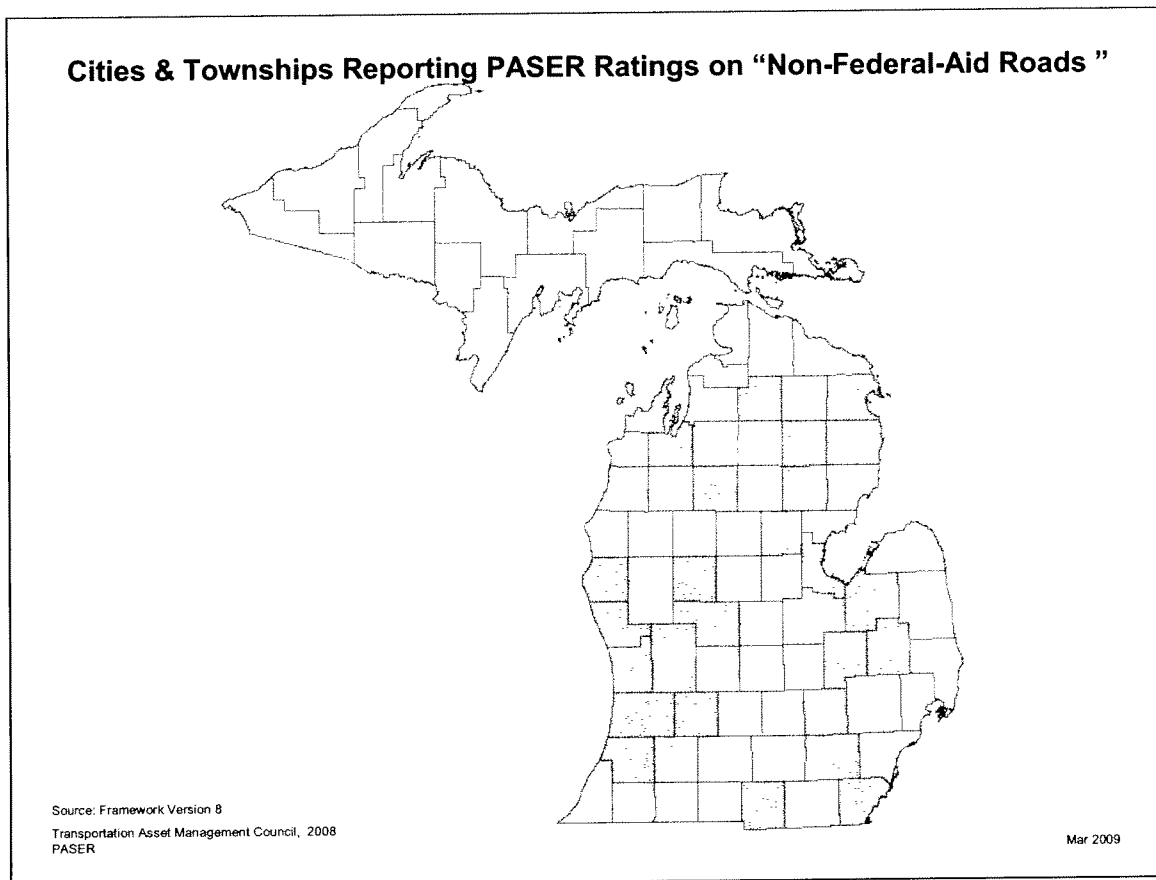
Condition		2004		2008	
		County, City, Non-Freeway	Freeway	County, City, Non-Freeway	Freeway
Fair	Percent	65.0%	61.0%	47.6%	60.2%
	Lane Miles	53,844	6,122	35,470	6,042
	CPM %	100%	100%	100%	100%
	CPM cost/ln.mi.	\$28,000	\$42,000	\$45,000	\$53,000
	Total Need in Fair Cond.	\$1,507,632,000	\$257,124,000	\$1,596,150,000	\$320,226,000
Poor	Percent	10.8%	6.4%	34.3%	9.2%
	Lane Miles	8,915	646	25,559	923
	Rehabilitation %	70%	70%	70%	70%
	Rehab. cost/ ln.mi.	\$100,000	\$335,000	\$121,000	\$423,000
	Rehab. Sub Total	\$624,050,000	\$151,487,000	\$2,164,847,300	\$273,300,300
	Reconstruction %	30%	30%	30%	30%
	Reconst. cost/ln.mi.	\$360,000	\$930,000	\$328,000	\$1,172,000
	Reconst. Sub Total	\$962,820,000	\$180,234,000	\$2,515,005,600	\$324,526,800
	Total Need in Poor Cond.	\$1,586,870,000	\$331,721,000	\$4,679,852,900	\$597,827,100
	Total Fair and Poor Cond.	\$3,094,502,000	\$588,845,000	\$6,276,002,900	\$918,053,100
Grand Total		\$3,683,347,000		\$7,194,056,000	

Reduction in Asset Value 2004 to 2008 \$3,510,709,000

*Estimated Typical Costs for Reconstruction, Rehabilitation, and Maintenance Treatments
on Local Federal Aid Pavements in Michigan, MDOT MAP Database, and Historical
Information, April 2009*

Non-Federal-Aid Roads and Streets

Not all roads in Michigan are eligible for federal aid. Whether a road is eligible for aid or not depends upon its national functional classification. FHWA developed this system of classifying roads according to the predominant type of traffic and the traffic volume a road carries. All public roads in Michigan have an NFC designation. MDOT and local officials work cooperatively to functionally classify roads. The results of this joint process are submitted to FHWA for final approval. In general, non-federal-aid eligible roads are residential streets and lightly-traveled county roads. Roughly half of these roads are unpaved.



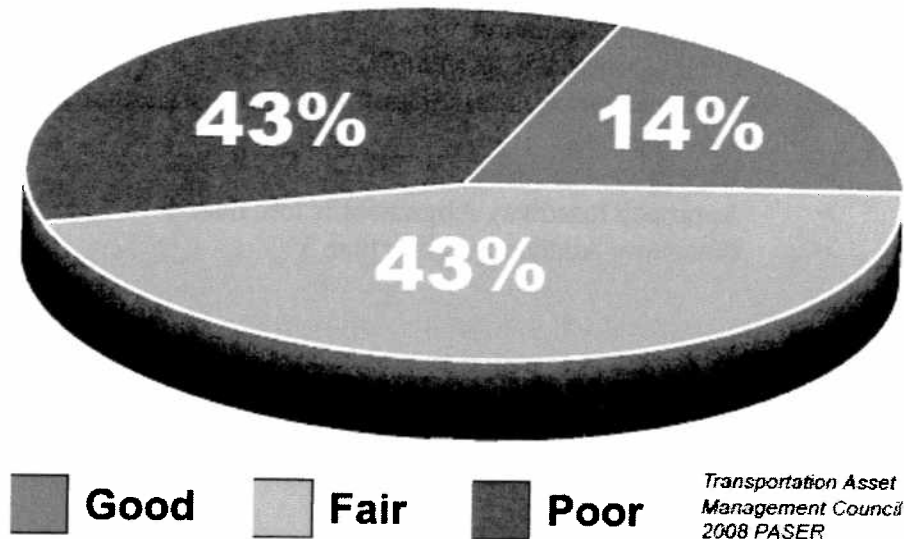
Since its inception, the Council has focused its attention on the condition of the 39,700 miles of federal-aid eligible roads in the state. In 2008, the Council expanded its focus to include a major portion of the paved non-federal-aid eligible roads.

There are 79,395 miles of non-federal-aid eligible roads in the state. Approximately one half of this mileage (about 40,000 miles) is paved. Just over 10,600 miles of these roads were observed and assigned PASER ratings in 2008.

Similar to the pavement ratings for federal-aid roads, the ratings for non-federal-aid roads are reported in lane miles. The 10,600 miles of non-federal-aid roads rated in 2008

comprise 21,428 lane miles. The 2008 ratings reveal that 2,897 lane miles are in good condition, 9,308 are in fair condition, and 9,223 are in poor condition.

NON-FEDERAL AID PAVEMENT CONDITION



Bridges

Bridges have their own federal rating system. Bridges can be classified as “structurally deficient” or “functionally obsolete.” These classifications are determined by the National Bridge Inventory (NBI) database. Federal law requires that bridges be inspected at least once every two years. There are nine different categories which determine whether a bridge is classified as “deficient.” Condition ratings are based on a 0-9 scale and assigned for the superstructure, the substructure, and the deck of each bridge. A condition of 4 or less classifies the bridge as being “deficient.”

Structurally Deficient: Generally, a bridge is structurally deficient if any major component is in “poor” condition. If any one or more of the following are true, then the bridge is structurally deficient.

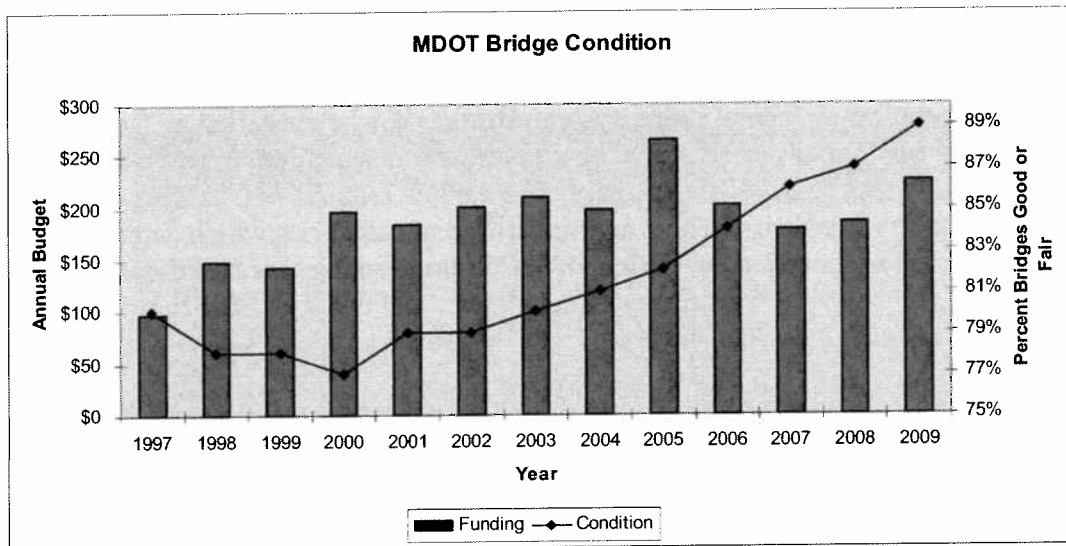
- Deck Rating is less than 5
- Superstructure Rating is less than 5
- Substructure Rating is less than 5
- Culvert Rating is less than 5
- Structural Evaluation is less than 3

Functionally Obsolete: Generally, a bridge is functionally obsolete if it is NOT structurally deficient AND its clearances are significantly below current design standards for the volume of traffic being carried on or under the bridge. More specifically, if the bridge is NOT structurally deficient AND any one or more of the following are true, then the bridge is functionally obsolete.

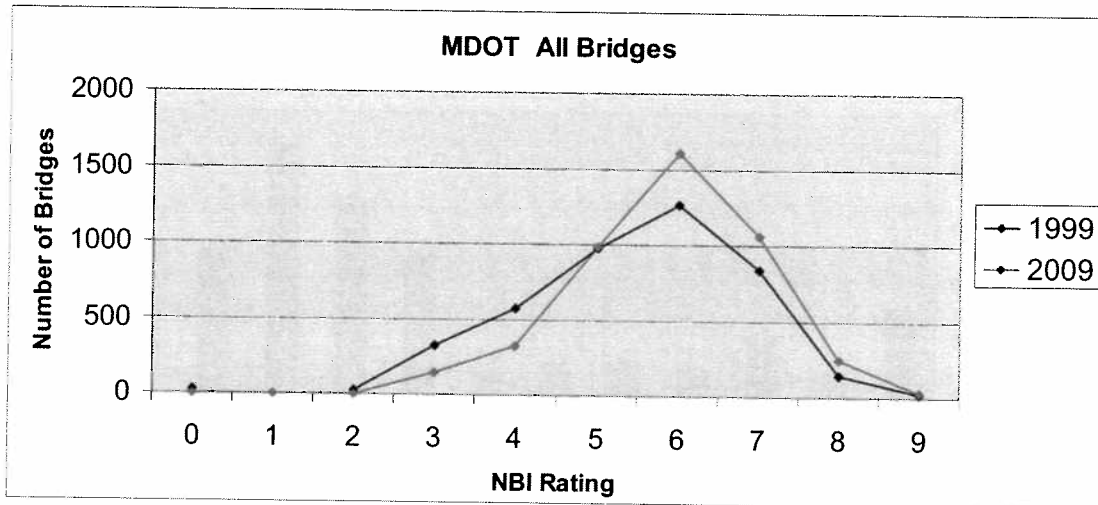
- Structural Evaluation = 3
- Deck Geometry is less than 4
- Underclearance is less than 4 and there is another highway under the bridge
- Waterway Adequacy = 3
- Approach Roadway Alignment is less than 4
- Waterway Adequacy is less than 3

A bridge cannot be classified as both structurally deficient and functionally obsolete. If a bridge qualifies for both, then it is reported as structurally deficient. While functionally obsolete bridges represent needed improvements if the overall system is to achieve maximum operating efficiency, the bridges rated as structurally deficient require more immediate attention.

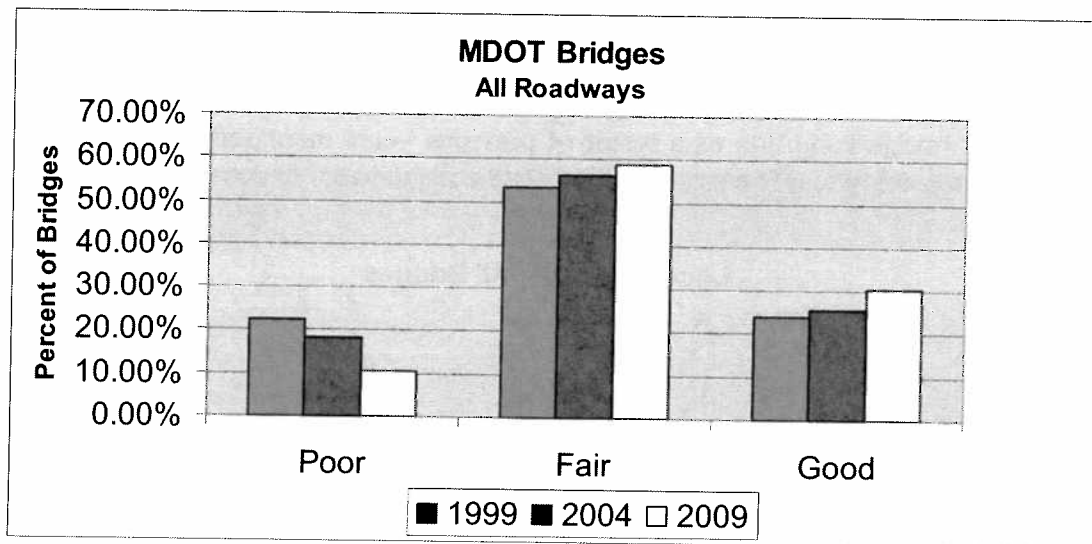
Bridges under State Jurisdiction



This graph shows the condition for bridges under state jurisdiction as a line graph overlaying a column chart showing funding for the MDOT bridge program. Bridge conditions have steadily improved since 2000. Note that there is generally a 1-3 year delay between condition state responses to funding levels due to the time lapse from letting to post-construction inspection.

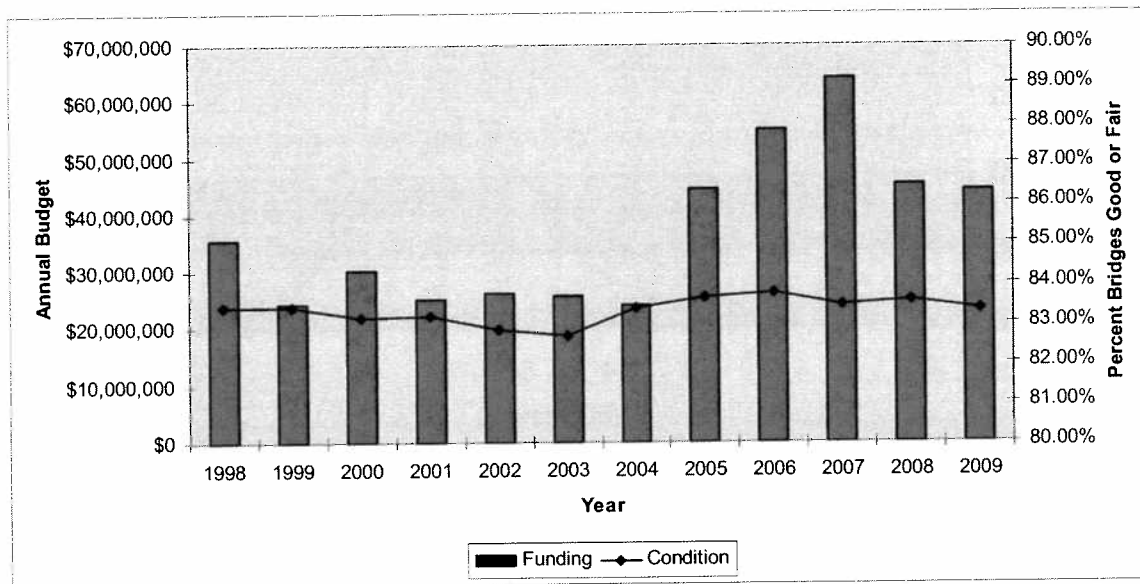


This chart compares the number of bridges in each condition state, from 1999 to 2009 in a line graph. If you compare the area under the line, you can see the overall change in condition for the ten-year time frame. There are more bridges in 2009 than in 1999, but progress has been made in reducing the number of bridges rated 4 or less and there has been a significant increase in the number of bridges rated fair.

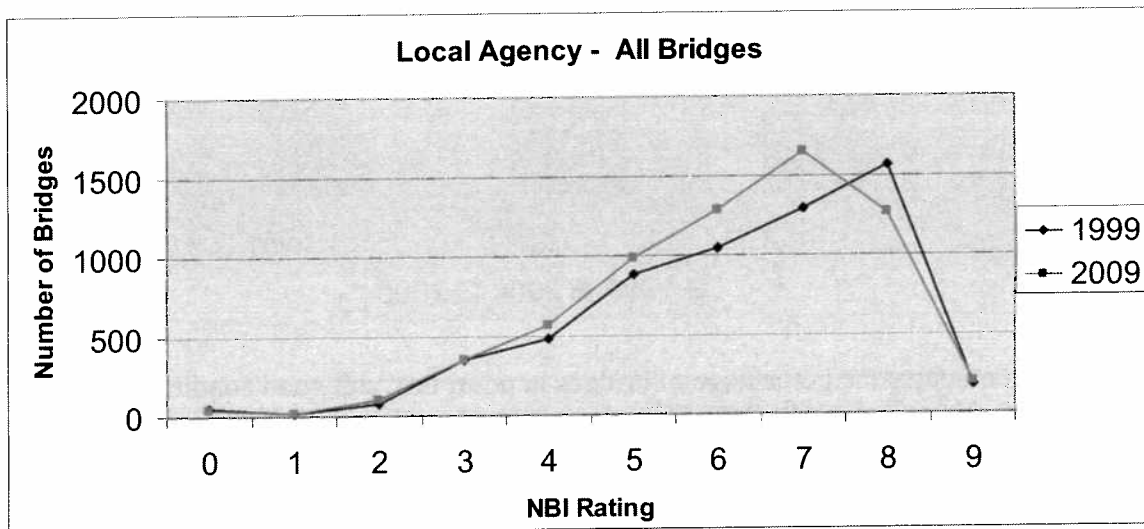


This chart compares the percentage of bridges in poor, fair, and good condition every five years (1999, 2004, and 2009). MDOT has significantly reduced the percentage of bridges in poor condition while increasing the percentage of bridges in fair and good condition.

Bridges under Local Jurisdiction



This figure shows local agency bridge condition as a line graph overlaying a column chart showing funding for the local agency bridge program. Notice that in 2005, 2006 and 2007 funding local agency bridge funds had large increases, but condition state had not increased. Sometimes there is a two year delay in condition state response. This is evident in 2008 when funds had a large decrease, and we still saw a slight increase in local agency bridge condition as a result of previous years increased funding. In 2009, with funds continuing to decrease, condition state is anticipated to decrease.



This chart compares the number of bridges in each condition state, from 1999 to 2009 in a line graph. If you compare the area under the line, you can see the overall change in condition in the ten year time frame. In this chart, we can see that there has been little change in condition of local agency poor bridges, and we can see that there is a trend in

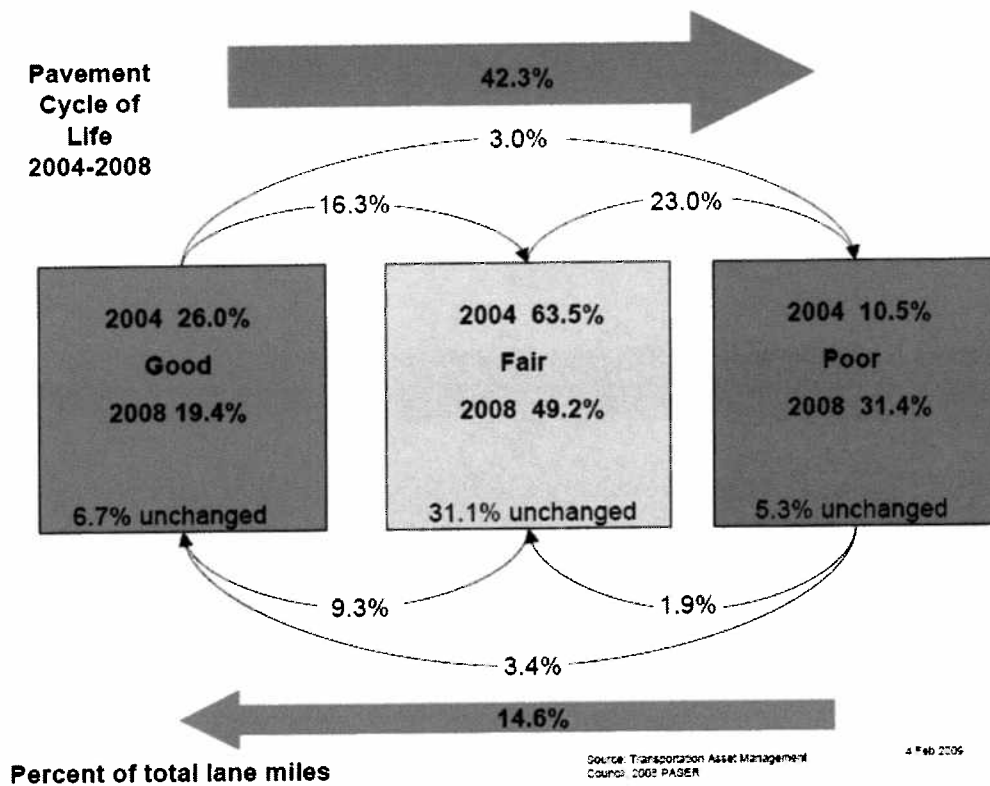
the local agency bridge network of good bridges moving into the fair categories. This is reasonable since the network is aging, but it does show the importance of preventive maintenance for local agency bridges. By increasing the number of rehabilitation projects on poor bridges, the local agencies will be able to reduce the number of poor bridges also.

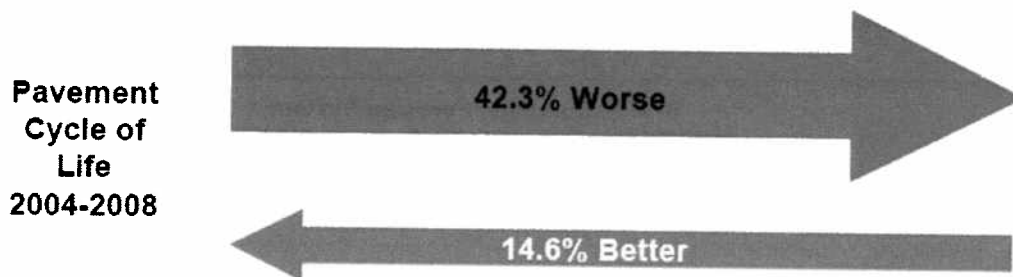
FIVE YEAR TREND ANALYSIS

Roads

The chart below shows that 42.3 percent of Michigan's roads have deteriorated over the last five years (2004 – 2008). During that period, 16.3 percent of the roads went from good to fair, 23 percent went from fair to poor, and 3 percent slid all the way from good to poor. In that same five year period, only 14.6 percent of the roads were improved: 9.3 percent from fair to good, 1.9 percent from poor to fair and 3.4 percent from poor to good.

Road Deterioration: 2004 – 2008
Chart





Percent of total lane miles

Source: Transportation Asset Management
Council: 2007 & 2008 PASER

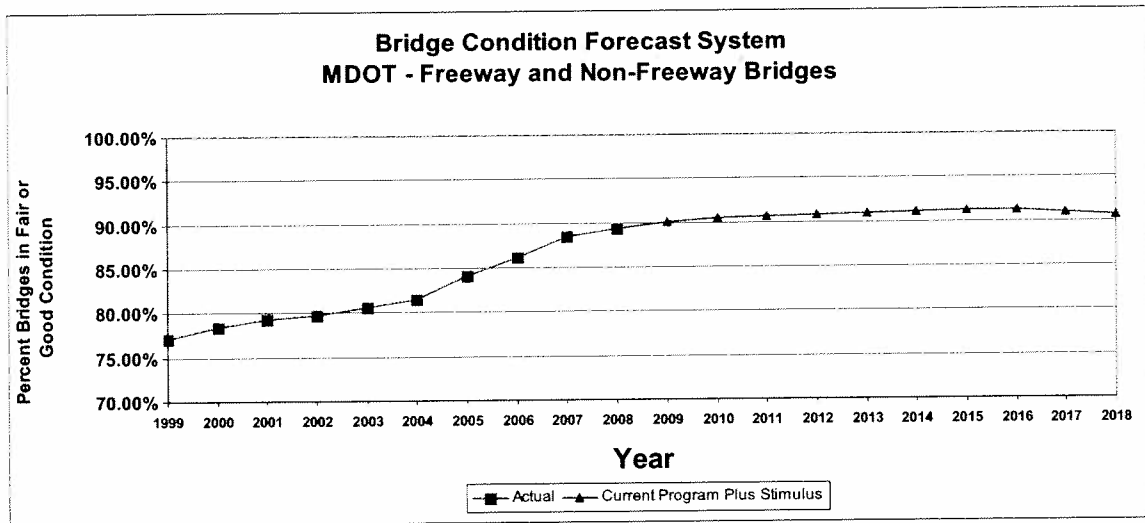
This also means that the roads are deteriorating at a faster rate than they can be maintained. The Council will be projecting future conditions on the federal-aid-system on a statewide basis based on these five years of data. These results will be reported when the model has been successfully run.

Bridge Condition Forecasting System

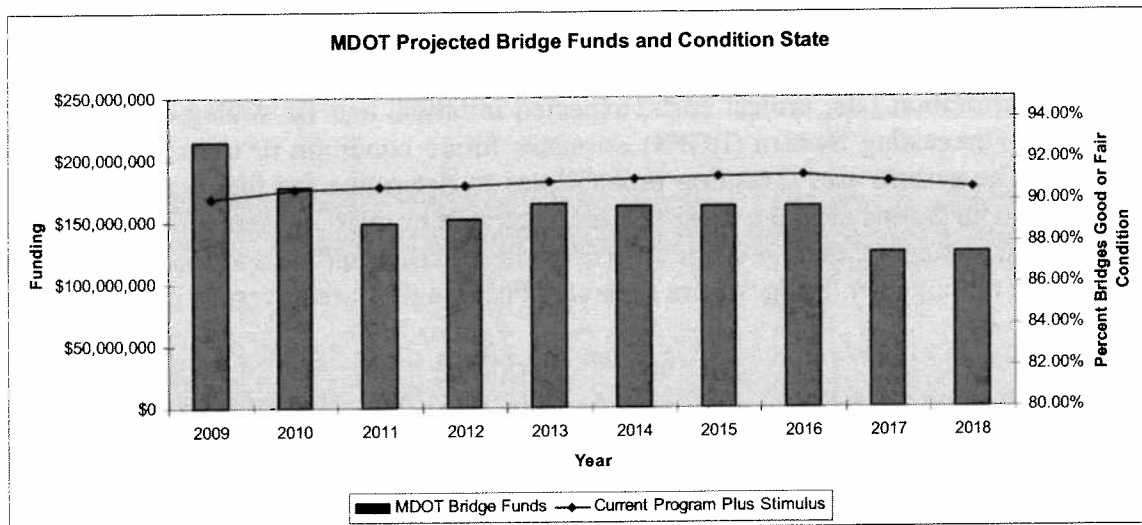
Working from current bridge condition information (National Bridge Inventory Data), bridge deterioration rate, project costs, expected inflation, and fix strategies, the Bridge Condition Forecasting System (BCFS) estimates future condition of trunkline and local bridges. The system uses transition probabilities to determine the future condition of a bridge. We made two separate runs, one for trunk line bridges and one for local bridges. Unlike the combined federal-aid run for roads where both trunkline and local jurisdiction roads were run together, bridges were separated because they are governed differently.

As can be seen in the following graph, the condition of the state trunkline bridges is expected to improve over the next ten years. In 2006, 84 percent of the bridges were rated in fair or good condition. By 2016 that figure is expected to increase to 89.9 percent. In 2002, the federal government approved the use of funds from the Highway Bridge Replacement and Rehabilitation Program for capital preventive maintenance work. This change in federal regulations helped MDOT in improving its overall bridge condition.

The following two figures show projections for future MDOT bridge conditions and anticipated funding levels (includes current program plus stimulus (ARRA)).



Source: MDOT Date: April 2009

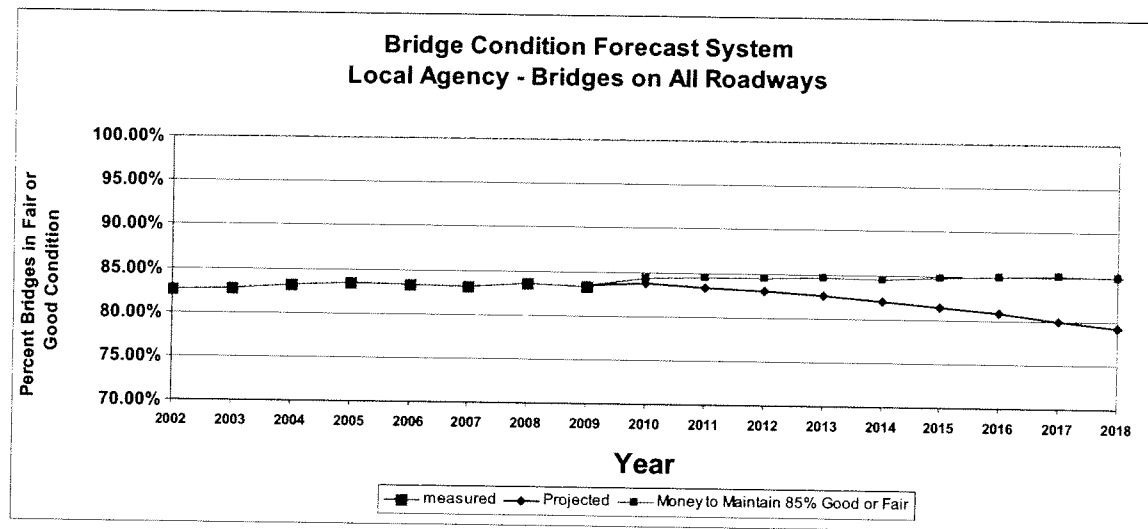


Source: MDOT Date: April 2009

Local Bridges

Unlike the state trunk line bridges, the condition of local bridges is projected to decline. In 2006, 83 percent of the bridges were rated as good or fair. By 2016 this number is projected to be 80 percent. Part of the reason for the differences between the state-owned bridges and local bridges is that MDOT has an aggressive preventive maintenance program (18 percent of its total budget) while most local agencies are not able to put much money toward on-going capital preventive maintenance. This would include such activities as sealing decks to prevent water from getting through to the substructure of the bridge. If local agencies were able to spend bridge money on capital preventive

maintenance, we would expect to see a general increase in the condition of their bridges over time.



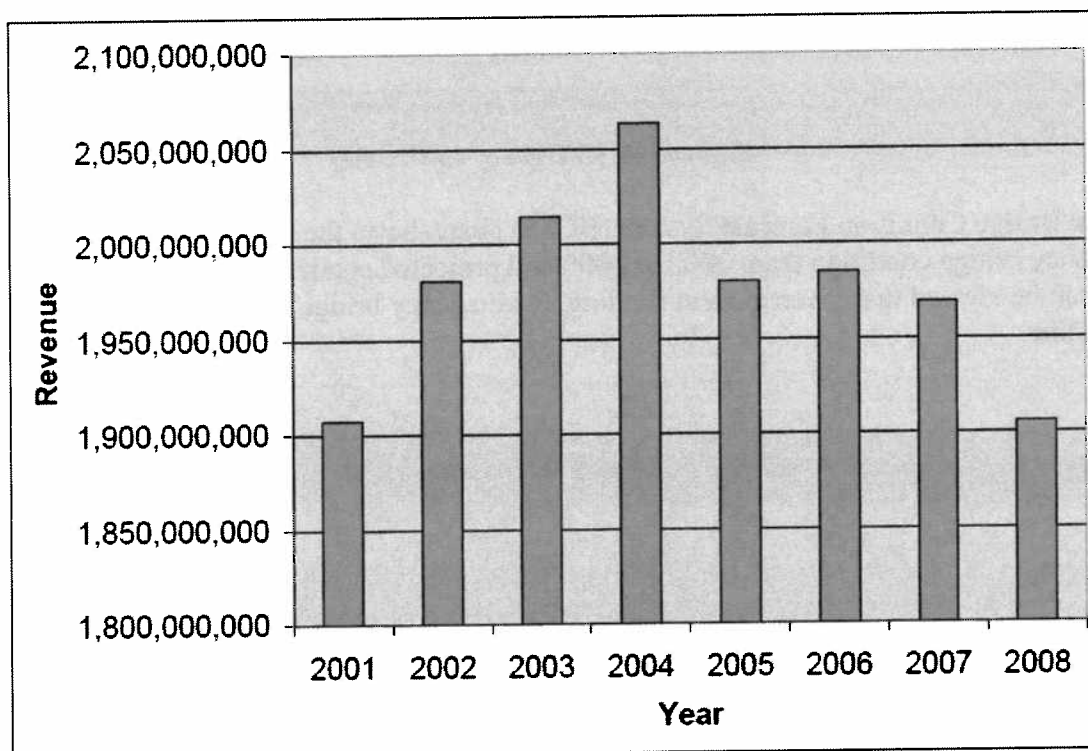
Source: MDOT Date: April 2009

The Bridge Condition Forecast System (BCFS) chart shows the measured trends in local agency bridge condition from 2002 to 2009 and projected condition from 2010 to 2018. It can be viewed that given current funding, local agency bridge condition will begin to decline.

INVESTMENTS IN THE SYSTEM

Michigan's public highways and bridges collectively represent the single largest publicly-owned asset. While accurate figures for all roads and bridges are not readily available, consider that the state government of Michigan owns some \$19 billion in assets of which MDOT owns \$15.1 billion, or 79 percent of all assets owned by the State. Of that \$15.1 billion, \$12.1 billion is in roads and bridges. If you consider MDOT owns only eight percent of the total mileage of public roads, the total value of all roads is significantly higher. Consequently, the public roads and bridges in Michigan constitute a valuable public asset.

MTF Total Gross Revenue: 2001 – 2008



Source: MDOT Date: April 2009

Transportation Funding Crisis

The chart above depicts the Michigan Transportation Fund (MTF) total gross revenue levels between the time periods of 2001 – 2008. Since the 1960's, Michigan has been in the bottom ten states for state and local transportation funding. Michigan's gas tax revenue has decreased \$100 million in the past five years and at current funding levels, the condition of Michigan's transportation infrastructure will continue to decline. It is projected that 2010 is the last year Michigan will be able to fully match federal funding. If this occurs, the federal gas tax collected in Michigan will go to other states. In 1996, only 64 percent of the state highways were in good condition. In 2007, Michigan's goal

of 90 percent of all state highways in good condition was achieved. In 2014, it is predicted that these gains could be significantly decreased, if not completely lost.

Transportation Funding Task Force

The Transportation Funding Task Force (TF2) was created in response to Public Act 221 (2007) and issued a final report to the Legislature, Governor and State Transportation Commission on November 10, 2008 (See Appendix Item C.) In general, this report concluded that Michigan's investment in transportation must increase. Transportation revenues have fallen while material costs have risen sharply. Among the recommendations listed in the report, some of which are listed below, TF2 concluded that current investment in transportation in Michigan needs to double.

The *Transportation Asset Management Council (Council)* and the *Asset Management* principal it promotes where specifically listed in the TF2 as recommended efficiencies:

- "Expand the Asset Management Program to include all public roads, pavement, ancillary elements and utility location." (Pg. 41)
- "Expand Authority of the State Transportation Commission to require management standards, benchmarks, reports and accountability for all recipients of state transportation funding as a condition of that funding." (Pg. 41, 42)
- "Establish performance standards for all agency operations and use of performance standards in funding allocations." (Pg. 42)

From a Council perspective, asset management requires not only the collection of data, but also the development of tools to effectively manage those assets based on the data collected. Many of those tools do not yet exist, and the full benefits of asset management processes will not be seen until they are developed. The Council supports the development of those tools and the training required to more effectively manage ancillary elements such as signs, guardrails, pavement marking and drainage systems. In addition, the Council supports expansion of asset management by establishment of additional performance measures consistent with ongoing studies being conducted by the Transportation Research Board (TRB). Requiring each road agency to adopt goals consistent with the performance measures recommended by the Transportation Asset Management Council would provide the focus necessary to most efficiently manage the transportation system. Establishing goals at the local agency level would account for variations in traffic volume, climate, economic activity, population levels and importantly the needs of user groups.

The Council's mission is to support excellence in managing Michigan's transportation assets by advising the State Transportation Commission and the Legislature, promoting asset management principles and providing tools and practices for road agencies. Its expertise is in providing technical guidance and training in the development and implementation of asset management programs. The State Transportation Commission has other resources at its disposal that could more appropriately and efficiently hold agencies accountable or determine funding levels should it become necessary to do so.

The American Recovery and Reinvestment Act of 2009 – Impact on Michigan Infrastructure

The American Recovery and Reinvestment Act (ARRA) was intended to be a one-time opportunity for the United States to kick start the nation's economy and put citizens back to work. Michigan is expected to receive nearly \$1 billion in formula funding for transportation related projects, of which \$850 million will be specifically for roads, bridges and highways. This investment is sorely needed by Michigan's road agencies and will provide a boost to a rapidly deteriorating infrastructure. But it is important to remember that this was intended to be a one-time opportunity and does not solve the structural funding problem in Michigan.

Conclusion

At current funding levels, the condition of Michigan's transportation infrastructure will continue to decline. Additional investment is required to ensure that those projects selected as part of the ARRA are preserved and maintained. In addition, that the recommendations listed in the TF2 are carried forward to preserve and maintain the state's road system.

TRANSPORTATION ASSET MANAGEMENT COUNCIL ACTIVITIES

Overview

In early 2008, the Council started a strategic planning initiative which will guide the activities and direction of the Council in the coming years.

2009 Activities

The Council identified these priorities for 2009:

- An administrative and quality control process for the funding and collection of data on the local roads & streets system.
- Guidance for the development for local asset management plans.
- Develop a recognition award program to single out those individuals and local road agencies that support and promote asset management practices.
- Create a new bridge subcommittee that will develop and implement a plan to promote and support bridge asset management practices.
- Revise investment reporting requirements to increase data reliability.
- Revise and update the Transportation Asset Management Council's website/data portal to improve content and streamline the reporting process.
- Hold the 2009 Annual Conference in East Lansing and Marquette.
- Continue to emphasize education and training opportunities.

FINDINGS & CONCLUSIONS

Roads

Michigan's roads continue to deteriorate at faster pace than they can be repaired or rebuilt. As reflected in this year's report, the winter of 2007-2008 further damaged many miles of already structurally weak roads. Over the course of a single year, the percentage of federal-aid eligible roads grew to 32 percent from 25 percent. The costs of this continued deterioration are significant. As shown in the following table, it would have cost about \$3.7 billion in 2004 to bring all poor and fair federal-aid roads up to a good rating. Due to unchecked deterioration and increased costs, in 2008 it would have costs \$7.2 billion—almost double of what it would have cost in 2004. Of course, putting all roads in good condition is impracticable. Nevertheless, the almost \$3.5 billion in lost value of our road assets is real. The adoption of good pavement and asset management practices by all road agencies can help check this deterioration and the resulting loss of value. However, these practices by themselves will be insufficient to do this.

Reduction in Asset Value 2004 - 2008
Comparison of Road Conditions on Michigan's Federal-Aid System

Condition		2004		2008	
		County, City, Non-Freeway	Freeway	County, City, Non-Freeway	Freeway
Fair	Percent	65.0%	61.0%	47.6%	60.2%
	Lane Miles	53,844	6,122	35,470	6,042
	CPM %	100%	100%	100%	100%
	CPM cost/ln.mi.	\$28,000	\$42,000	\$45,000	\$53,000
	Total Need in Fair Cond.	\$1,507,632,000	\$257,124,000	\$1,596,150,000	\$320,226,000
Poor	Percent	10.8%	6.4%	34.3%	9.2%
	Lane Miles	8,915	646	25,559	923
	Rehabilitation %	70%	70%	70%	70%
	Rehab. cost/ ln.mi.	\$100,000	\$335,000	\$121,000	\$423,000
	Rehab. Sub Total	\$624,050,000	\$151,487,000	\$2,164,847,300	\$273,300,300
	Reconstruction %	30%	30%	30%	30%
	Reconst. cost/ln.mi.	\$360,000	\$930,000	\$328,000	\$1,172,000
	Reconst. Sub Total	\$962,820,000	\$180,234,000	\$2,515,005,600	\$324,526,800
	Total Need in Poor Cond.	\$1,586,870,000	\$331,721,000	\$4,679,852,900	\$597,827,100
Total Fair and Poor Cond.		\$3,094,502,000	\$588,845,000	\$6,276,002,900	\$918,053,100
Grand Total		\$3,683,347,000		\$7,194,056,000	

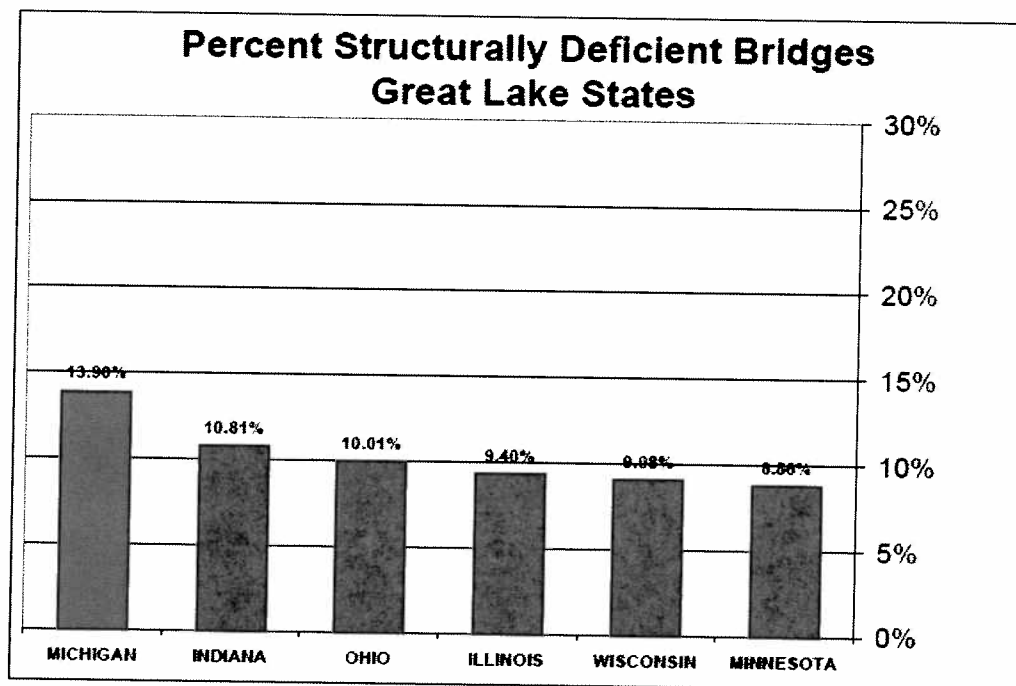
Reduction in Asset Value 2004 to 2008

\$3,510,709,000

The Council rated over 21,400 lane miles of paved **non**-federal-aid roads in 2008. This represents about 25 percent of all paved **non**-federal-aid roads in Michigan. Of the roads rated 43 percent or over 9,000 lane miles, are in poor condition. If this estimated 25 percent sample is representative of all paved **non**-federal-aid roads in the state, then it is reasonable to assume that 36,000 lane miles are in poor condition.

Bridges

One way of evaluating the overall conditions of bridges in Michigan is by comparing them to bridges in other Great Lake states where weather condition and traffic volumes are roughly similar. These comparisons are possible because of federal regulations that require all bridges to be examined, rated, and reported to the national bridge inventory database.



Great Lake States	Deficient Bridges	Percent Good/Fair
Michigan	13.90%	86.10%
Indiana	10.81%	89.19%
Ohio	10.01%	89.99%
Illinois	9.40%	90.60%
Wisconsin	9.08%	90.92%
Minnesota	8.86%	91.14%
Average Not Including Michigan	9.6%	90.4%

Source: MDOT Date: April 2009

The table above shows that Michigan's bridges have a significantly higher percentage of deficient bridges than the average of other Great Lake states. In 2008, 13.9 percent of bridges are deficient, as compared to the other Great Lake states average of 9.6 percent. If Michigan's bridges are to be the equal of its neighboring state's, sound asset management must continue to be followed and greater resources must be found.

Appendix A

STATE TRUNKLINE HIGHWAY SYSTEM (EXCERPT) Act 51 of 1951

As Amended by Act No. 199 Public Acts of 2007

247.659a Definitions; transportation asset management council; creation; charge; membership; appointments; staff and technical assistance; requirements and procedures; technical advisory panel; multiyear program; funding; records on road and bridge work performed and funds expended; report.

Sec. 9a. (1) As used in this section:

- (a) "Asset management" means an ongoing process of maintaining, upgrading, and operating physical assets cost-effectively, based on a continuous physical inventory and condition assessment.
- (b) "Bridge" means a structure including supports erected over a depression or an obstruction, such as water, a highway, or a railway, for the purposes of carrying traffic or other moving loads, and having an opening measuring along the center of the roadway of more than 20 feet between under copings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes where the clear distance between openings is less than 1/2 of the smaller contiguous opening.
- (c) "Central storage data agency" means that agency or office chosen by the council where the data collected is stored and maintained.
- (d) "Council" means the transportation asset management council created by this section.
- (e) "County road commission" means the board of county road commissioners elected or appointed pursuant to section 6 of chapter IV of 1909 PA 283, MCL 224.6, or, in the case of a charter county with a population of 2,000,000 or more with an elected county executive that does not have a board of county road commissioners, the county executive for ministerial functions and the county commission provided for in section 14(1)(d) of 1966 PA 293, MCL 45.514, for legislative functions.
- (f) "Department" means the state transportation department.
- (g) "Federal-aid eligible" means any public road or bridge that is eligible for federal aid to be spent for the construction, repair, or maintenance of that road or bridge.
- (h) "Local road agency" means a county road commission or designated county road agency or city or village that is responsible for the construction or maintenance of public roads within the state under this act.

(i) "Multiyear program" means a compilation of road and bridge projects anticipated to be contracted for by the department or a local road agency during a 3-year period. The multiyear program shall include a listing of each project to be funded in whole or in part with state or federal funds.

(j) "State planning and development regions" means those agencies required by section 134(b) of title 23 of the United States Code, 23 USC 134, and those agencies established by Executive Directive 1968-1.

(2) In order to provide a coordinated, unified effort by the various roadway agencies within the state, the transportation asset management council is hereby created within the state transportation commission and is charged with advising the commission on a statewide asset management strategy and the processes and necessary tools needed to implement such a strategy beginning with the federal-aid eligible highway system, and once completed, continuing on with the county road and municipal systems, in a cost-effective, efficient manner. Nothing in this section shall prohibit a local road agency from using an asset management process on its non-federal-aid eligible system. The council shall consist of 10 voting members appointed by the state transportation commission. The council shall include 2 members from the county road association of Michigan, 2 members from the Michigan municipal league, 2 members from the state planning and development regions, 1 member from the Michigan townships association, 1 member from the Michigan association of counties, and 2 members from the department. Nonvoting members shall include 1 person from the agency or office selected as the location for central data storage. Each agency with voting rights shall submit a list of 2 nominees to the state transportation commission from which the appointments shall be made. The Michigan townships association shall submit 1 name, and the Michigan association of counties shall submit 1 name. Names shall be submitted within 30 days after the effective date of the 2002 amendatory act that amended this section. The state transportation commission shall make the appointments within 30 days after receipt of the lists.

(3) The positions for the department shall be permanent. The position of the central data storage agency shall be nonvoting and shall be for as long as the agency continues to serve as the data storage repository. The member from the Michigan association of counties shall be initially appointed for 2 years. The member from the Michigan townships association shall be initially appointed for 3 years. Of the members first appointed from the county road association of Michigan, the Michigan municipal league, and the state planning and development regions, 1 member of each group shall be appointed for 2 years and 1 member of each group shall be appointed for 3 years. At the end of the initial appointment, all terms shall be for 3 years. The chairperson shall be selected from among the voting members of the council.

(4) The department shall provide qualified administrative staff and the state planning and development regions shall provide qualified technical assistance to the council.

(5) The council shall develop and present to the state transportation commission for

approval within 90 days after the date of the first meeting such procedures and requirements as are necessary for the administration of the asset management process. This shall, at a minimum, include the areas of training, data storage and collection, reporting, development of a multiyear program, budgeting and funding, and other issues related to asset management that may arise from time to time. All quality control standards and protocols shall, at a minimum, be consistent with any existing federal requirements and regulations and existing government accounting standards.

(6) The council may appoint a technical advisory panel whose members shall be representatives from the transportation construction associations and related transportation road interests. The asset management council shall select members to the technical advisory panel from names submitted by the transportation construction associations and related transportation road interests. The technical advisory panel members shall be appointed for 3 years. The asset management council shall determine the research issues and assign projects to the technical advisory panel to assist in the development of statewide policies. The technical advisory panel's recommendations shall be advisory only and not binding on the asset management council.

(7) The department, each county road commission, and each city and village of this state shall annually submit a report to the transportation asset management council. This report shall include a multiyear program developed through the asset management process described in this section. Projects contained in the department's annual multiyear program shall be consistent with the department's asset management process and shall be reported consistent with categories established by the transportation asset management council. Projects contained in the annual multiyear program of each local road agency shall be consistent with the asset management process of each local road agency and shall be reported consistent with categories established by the transportation asset management council.

(8) Funding necessary to support the activities described in this section shall be provided by an annual appropriation from the Michigan transportation fund to the state transportation commission.

(9) The department and each local road agency shall keep accurate and uniform records on all road and bridge work performed and funds expended for the purposes of this section, according to the procedures developed by the council. Each local road agency and the department shall annually report to the council the mileage and condition of the road and bridge system under their jurisdiction and the receipts and disbursements of road and street funds in the manner prescribed by the council, which shall be consistent with any current accounting procedures. An annual report shall be prepared by the staff assigned to the council regarding the results of activities conducted during the preceding year and the expenditure of funds related to the processes and activities identified by the council. The report shall also include an overview of the activities identified for the succeeding year. The council shall submit this report to the state transportation commission, the legislature, and the transportation committees of the house and senate by May 2 of each year.

Appendix B:

TRANSPORTATION FUNDING TASK FORCE (EXCERPT)

Section 4: Current Efficiencies (Pages 33 – 35)

The Task Force members felt that it was important to understand the types of efficiencies, reforms, and best practices currently being implemented before any real discussion of increased investment begins. What they learned was that there are many operational efficiencies and reforms being implemented every day by transportation agencies across the state.

In order to maximize the delivery of services and programs with limited revenue, transportation agencies – including the state, county road commissions, municipalities, local transit agencies, airport authorities, and others – have continually worked to be more efficient. Often this effort is transparent, that is the people who use the transportation system do not notice the budget-cutting measures being taken, because service continues without interruption.

The following examples are just a few of the biggest, most comprehensive examples of reform and efficiency taking place. For a complete list of all efficiencies, reforms, and best practices currently being implemented across the state, click on “View Final Report” at the Web site of the Transportation Funding Task Force at www.michigan.gov/tf2.

Asset Management (Page. 33)

One of the most effective reforms in Michigan has been the implementation of asset management programs for all modes of transportation. Asset management is a data-driven, decision-making approach that helps ensure the appropriate investment is made at the right time to preserve the life of a physical asset.

Roads and Bridges: The creation of the Asset Management Council and implementation of asset management across road jurisdictions has been a ground-breaking effort. In order to provide a uniform data set, collection methods, etc., which are required to have a credible asset management program, extensive cooperation was required between road agencies and governments at all levels. Achieving this level of cooperation was historic and unprecedented. Never have so many road agencies, municipalities, metropolitan planning organizations, and MDOT worked so closely together for such an extended time to create a universally applicable system that is shared by all agencies with road jurisdiction in the state.

Section 5: Current Efficiencies (Pages 39 – 45)

Based on information from the CAC, local transportation agencies, transportation organizations, public testimony obtained from the various statewide meetings, and their own discussions, the Task Force collected a diverse and creative set of efficiency, reform,

and best practice options to review. Highlighted here are those options deemed to have the highest potential to stretch existing transportation revenue.

Organizational Efficiencies and Reforms:

Expand the Asset Management Program to include all public roads, pavement, ancillary elements, and utility location. (Page. 41)

Michigan's highly successful Asset Management Program is a data-driven, decision-making process that helps road agencies identify the investment needed to maximize the service life of road and bridge infrastructure. The program is currently applied (through the Asset Management Council and works closely with MDOT and local road agencies) only to the 30,000 or so miles of federal-aid eligible highways and bridges, and focuses primarily on pavement and bridge condition. Expanding the Asset Management Program to include ancillary elements such as drainage, lighting, and other features will extend the benefits of this program to other aspects of the roadway that are important to safety and to pavement condition. Expanding the program to all roads will have similar benefits. This effort will require time and much additional data will need to be gathered before it can be fully implemented, but the potential exists through this program to ensure the very best use of invested funds.

Expand authority of the State Transportation Commission to require management standards, benchmarks, reports, and accountability for all recipients of state transportation funding as a condition of that funding. (Page. 42)

The powers and authority of the State Transportation Commission (Commission) is conferred by Article V, Section 28 of the Michigan Constitution of 1963 and P.A. 286 of 1964. The Constitution requires the Commission to establish policies for MDOT programs, facilities, and other public works. The director of MDOT executes the policies outlined by the Commission. In addition, P.A. 286 authorizes the Commission to award contracts for the construction, improvement, and maintenance of highways and related transportation facilities.

Expanding the policy-making authority of the Commission to include programmatic oversight and accountability standards for programs and services that receive funding from transportation revenues would require the Commission to take a more active role on how transportation revenues are being expended and hold receiving agencies more accountable for program outcomes and outputs, thereby ensuring greater programmatic efficiency and oversight.

Any expansion of the Commission's role should not replace or duplicate the critical role played by local transportation officials. The state's role should be limited to ensuring local systems have locally established management standards and methods in place to ensure accountability to travelers and taxpayers.

Establish performance standards for all agency operations, and use of performance factors in funding allocations. (Page. 42)

The current funding allocation structure for various transportation agencies is based on distribution formulas in state law. While the Task Force recognizes that most agencies

work diligently to make the best use of funds and provide the best service possible for the money, improvement is always possible and should be encouraged. Adding performance benchmarks as criteria for deciding the level of funding provided to each agency would standardize procedures, encourage innovation, improve performance, hold agencies accountable for poor performance, and identify areas where improvement or training are needed.

Michigan transit agencies, for example, submit data to MDOT that allows each agency, along with their local board and residents, to review their performance over time in comparison to other Michigan transit agencies. For urban transit systems, similar data is submitted to the federal government so that Michigan transit agencies can compare themselves to peers around the country. The tools are readily available to local boards and local voters to establish appropriate performance standards for their transit systems and hold them accountable for their performance.

Appendix C:

ASSET MANAGEMENT COUNCIL MEMBERS

Carmine Palombo, Chair: Carmine is the Director of Transportation Programs for the Southeast Michigan Council of Governments. He is in his second term on the Council and has served as the Chair since the Council's first meeting in October 2002. He represents the Michigan Transportation Planners Association.

Robert D. Slattery, Jr., Vice-Chair: Bob is the Mayor of Mt. Morris, a position he has served in since 1991. Bob is in his first full-term on the Council and represents the Michigan Municipal League.

David Bee: Dave is the Director of the West Michigan Regional Planning Commission. He has been in that position since 2000. Dave is in his first term on the Council and represents the Michigan Association of Regions.

Don Disselkoen: Don currently serves as the Chair of the Ottawa County Board of Commissioners, and represents the 8th district of Ottawa County, which is most of the city of Holland. Don is the newest member of the Council.

William McEntee: Bill is the Director of the Permits & Environmental Concerns of the Road Commission for Oakland County. He has served in that position since 1992. Bill is in his third term on the Council and represents the County Road Association of Michigan.

Susan Mortel: Susan is the Director of Transportation Planning for the Michigan Department of Transportation. She has been in that position since 2002. Susan has been a member of the Council since 2002 and represents MDOT.

Spencer Nebel: Spencer is the City Manager for Sault Ste. Marie. He has been in that position since 1992. Spencer is in his first term on the Council and represents the Michigan Municipal League.

Gerald Richards: Jerry is the Manager of Meridian Charter Township. He has been in that position since 1995. Jerry is in his second term on the council. He represents the Michigan Townships Association.

Kirk T. Steudle: Kirk is the Director of the Michigan Department of Transportation. He was appointed to that position by Governor Granholm in March of 2006. Kirk has served on the council since 2002 and represents MDOT.

Rob Surber: Rob is the Deputy Director of the Center for Shared Solutions (CSS), formally the Center for Geographic Information (CGI). The Center serves as the Council's data storage agency and is a non-voting member. Rob has been a member of the council since 2004.

Steve Warren: Steve is the Deputy Director of the Kent County Road Commission. He has served in that position since 1988. Steve is in his second term on the Council. He represents the County Road Association of Michigan.

Appendix D:

DEFINITION OF TERMS

Asset Management: as defined in Michigan is “an ongoing process of maintaining, upgrading and operating physical assets cost-effectively, based on a continuous, physical inventory and condition assessment.” [MCL 247.659(a)]

Bridge Replacement: Removing the old bridge and constructing a new bridge at the same location.

Bridge Recondition or Repair: All types of major repairs including the replacement of the deck.

Capital Preventive Maintenance: Capital preventive maintenance means a planned strategy of cost-effective treatments to an existing roadway system and its appurtenances that preserve assets by retarding deterioration and maintaining functional condition without increasing structural capacity. Work activities and actions that are included as a capital preventive maintenance activity are those that extend the life of the asset, but do not change the original design, function, or purpose of the asset; the primary purpose of the work is to repair the incremental effects of weather, age, and use; the useful service life or benefits extend beyond the next fiscal year; and the work may restore some structural capacity of the road but, it does not substantially increase the loading allowed.

Construction: Construction is the building of a new road, street or bridge on a new location, and the addition of lanes to increase the capacity for through traffic. It is the improving of an existing road or street by correcting the grade, drainage structures, width, alignment, or surface. It is the building of bridges or grade separations, and the repair of such structures by strengthening, widening, and the replacement of piers and abutments. It is the initial signing of newly constructed roads or streets, major resigning of projects, and the installation, replacement, or improvement of traffic signals.

Heavy Maintenance: The improving of an existing road or street by correcting the grades, drainage structures, width, alignment, surface, and the hard surfacing of gravel roads. It also includes the rebuilding of existing bridges or grade separations, and the repair of such structures by strengthening, and the replacement of piers and abutments.

Maintenance: According to Act 51, “maintenance” means routine maintenance or preventive maintenance, or both. Maintenance does not include capital preventive treatments, resurfacing, reconstruction, restoration, rehabilitation, safety projects, widening of less than one-lane width, adding auxiliary turn lanes of one-half mile or less, adding auxiliary weaving, climbing, or speed-change lanes, modernizing intersections, or the upgrading of aggregate surface roads to hard surface roads.

Reconstruction: Any construction where the road is totally reconstructed by regrading, new subgrade, subbase, and surface at the same location.

Resurfacing: Resurfacing pavements with minor base repair, minor widening, and resurfacing the existing width. This would include any double or triple seal coating.

Routine Maintenance: Routine maintenance includes actions performed on a regular or controllable basis or in response to uncontrollable events upon a roadway. Work activities or actions considered to be routine maintenance are those where the benefit or effective service life of the work does not last beyond the next fiscal year; the work would not significantly change the surface rating of the road; or the work would rarely require acquisition of right-of-way or site specific design.

Structural Improvement: Structural improvement includes any activity that is undertaken to preserve or improve the structural integrity of an existing roadway. The structural improvement category includes those work activities where the safety or structural elements of the road are improved to satisfy current design requirements. Structural improvement does not include new construction on a new location of a roadway; a project that increases the capacity of a facility to accommodate that part of traffic having neither an origin nor destination within the local area; widening of a lane width or more; or adding turn lanes of more than one-half mile in

